

HL extensions: culture, motivation, technology and data (Paper 3)

International Baccalaureate · IB Diploma · Psychology · HL

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IB Diploma Programme Psychology HL (the course first assessed in 2027). HL students study two extensions of 45 hours each. The first is the role of **culture**, **motivation** and **technology** in shaping human behaviour. The second is **data analysis and interpretation**. Paper 3 (1 hour 45 minutes, 30 marks) joins them: you get four to six sources with research findings on one extension topic and answer four questions (3, 6, 6 and 15 marks). You read graphs, judge the research and decide how far the evidence supports a claim.

In 2021 China limited online games for under-18s to one hour on Friday, Saturday and Sunday evenings and on public holidays. The rule rests on claims about technology (games harm young people), motivation (games are designed to keep players playing) and culture (what families and schools expect of children). Are the claims true? A Paper 3 answer looks at the data before it agrees.

Must-know for this topic:

Idea	Key content
culture	cultural dimensions; WEIRD samples; emic and etic; attribution across cultures
motivation	intrinsic and extrinsic; self-determination theory; the overjustification effect
technology	social media and well-being; smartphones and attention; the Google effect
data analysis	mean, median, standard deviation; graphs; correlation; p-values; thematic analysis
Paper 3	read the source; judge the research; weigh several sources against a claim

Culture and behaviour

Hofstede described **cultural dimensions**, ways in which national cultures differ on average. The best known is **individualism–collectivism**

: in individualist cultures people see themselves mainly as separate persons; in collectivist cultures mainly as members of groups. These are averages: many people in any country do not fit them.

Culture shapes how we explain behaviour. Morris and Peng (1994) compared reports

of the same two murders in an English-language and a Chinese-language newspaper in the United States. The English reports blamed the killers' personalities more; the Chinese reports pointed more to the situation, such as the killer's relationships and pressures.

Culture also matters for research itself. Henrich et al. (2010) found that about 96% of participants in top psychology journals came from Western, industrialised countries, which hold only about 12% of the world's population. They called these samples **WEIRD** (Western, educated, industrialised, rich, democratic). An **etic** approach applies one idea in every culture; an **emic** approach studies a culture from the inside, in its own terms. Findings from WEIRD samples should be tested before they are applied to students in China.

Motivation

Intrinsic motivation comes from enjoying the activity; **extrinsic motivation** comes from rewards or punishments. **Self-determination theory** (Deci and Ryan) says people are most motivated when three needs are met: **autonomy** (choice), **competence** (feeling able) and **relatedness** (feeling connected to others).

Rewards can reduce intrinsic motivation. Lepper, Greene and Nisbett (1973) studied preschool children who liked to draw. Some were promised a certificate for drawing; others were not. One to two weeks later, in free time, the children who had expected the certificate spent about 9% of their time drawing, compared with about 17% to 18% in the other groups. This is the **overjustification effect**: the reward becomes the reason, so without it the activity loses its pull. Game designers use the other side of this, with points, levels and streaks that reward players often.

Technology and behaviour

Many people believe social media makes teenagers unhappy. Orben and Przybylski (2019) analysed three large data sets with more than 350,000 teenagers. Technology use did have a negative link with well-being, but it explained at most 0.4% of the differences in well-being, about as much as eating potatoes did. The data were correlational, so they cannot show the direction of cause: unhappy teenagers may also use more social media.

Ward et al. (2017) gave students working-memory tests with their phone on the desk (face down, silent), in a bag, or in another room. Students did best with the phone in another room, even though they did not use it. Later studies did not always find the effect, which is a reason to wait for replications before changing school rules.

Sparrow et al. (2011), in Topic 2, showed that people remember where information is stored rather than the information itself when they expect to find it online.

Data analysis and interpretation

Describing numbers

Measure	Meaning	Use
mean	total divided by number of scores	most data; affected by extreme scores
median	middle score	data with extreme scores
mode	most common score	categories
range	highest minus lowest	quick idea of spread
standard deviation	typical distance of scores from the mean	shows how much scores spread

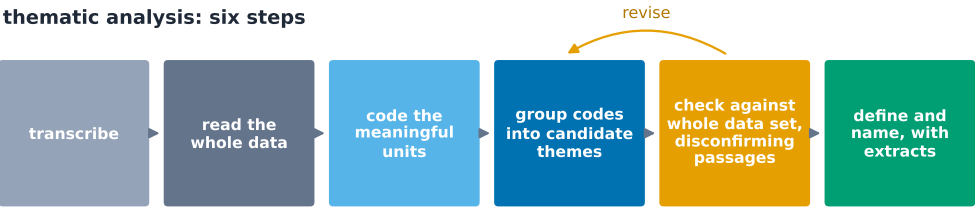
A difference between two means is only meaningful if it is large compared with the standard deviation. **Inferential tests** give a **p-value**: the chance of a difference this big if the null hypothesis were true. Psychologists usually call a result **statistically significant** when $p < 0.05$. A significant result can still be a small effect, and a result from a small sample may not repeat.

A **correlation coefficient**, r , runs from -1 to $+1$. A value near 0 means no linear relationship; ± 0.5 is moderate; ± 1 is perfect. A negative r means one variable goes down as the other goes up.

Describing words

Thematic analysis turns interview transcripts into themes. **Content analysis** counts how often coded categories appear, which turns words into numbers. Two coders working on the same data check each other.

thematic analysis: six steps



content analysis: two raters code the same 20 statements

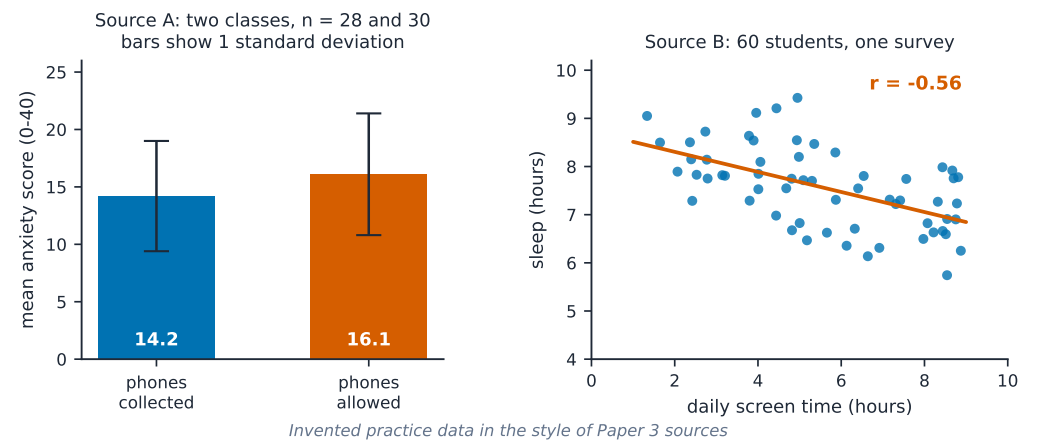


Improve agreement by sharpening the coding manual, not by averaging the disagreements away.

Thematic analysis in six steps, and how two coders check their agreement

Paper 3: worked example

The claim: *"The use of technology in school may have a negative effect on students' mental health."* Two of the sources are shown below; the data are invented for practice.



Two practice sources: a group comparison and a correlation

1. Explain one issue that limits the interpretation of the data in Source A. (3 marks)

The two groups were two whole classes, not randomly allocated, so they may differ in other ways, such as teacher or timetable. The difference in means (1.9) is also small compared with the standard deviations (about 5), so it may be due to chance.

2. Analyse the findings in Source B and state a conclusion linked to the claim. (6 marks) Describe the pattern ($r = -0.56$: a moderate negative correlation; more screen time goes with less sleep), give the range (about 6 to 9 hours of sleep), then the limit: it is one survey of self-reported hours, and correlation does not show cause. Conclusion: Source B supports a link between screen time and sleep, and poor sleep can harm mental health, but it does not show that technology causes the harm.

3. Discuss how the researcher could improve the credibility of the findings. (6 marks) For quantitative sources: random allocation, larger samples, objective measures such as sleep trackers, replication. For qualitative sources: triangulation, a second coder, and checking the themes with the participants.

4. To what extent can we conclude the claim? (15 marks) Use all the sources. Group them: which support the claim, which do not, and how strong each is. Weigh them with the concepts (causality, measurement, bias). End with a judgement: for example, the sources suggest a small negative link, but the designs cannot show cause, so the claim is only partly supported.

Checklist

- Culture: individualism–collectivism; attribution across cultures (Morris and Peng); WEIRD samples (Henrich); emic and etic.
- Motivation: intrinsic and extrinsic; self-determination theory and its three needs; the overjustification effect (Lepper et al.).
- Technology: social media and well-being (Orben and Przybylski); phones and working memory (Ward et al.); the Google effect (Sparrow et al.).
- Data: mean, median, mode, range, standard deviation; p-values and significance; correlation coefficients; thematic and content analysis.
- Paper 3: four questions (3, 6, 6, 15 marks); read the source, judge its quality, and weigh all the sources before a final judgement.